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ABSTRACT

Instructors seeking to practice learner-centered principles of teaching have several tools at their disposal. This paper summarizes four approaches to help students become more aware of their own psychological functioning and how it shapes their learning. Journal writing induces students to reflect and connect course concepts to past or present experiences. The Bloom Taxonomy of Educational Objectives encourages writing journal entries to reflect examples of knowledge, comprehension, application, analysis, synthesis, and evaluation. The covert curriculum, those routine skill-related activities, behaviors, and attitudes transacted inside and outside of classrooms, links the present to the future by recognizing that study skills are career skills. The Kolb Learning Style Inventory represents students' preferred mode of learning. In Kolb's Experimental Learning Model (Kolb, 1984), learning proceeds in four cycles, from concrete experience to reflective observation to abstract conceptualization to active experimentation. Included are guidelines for journal writing, articles by Paul Hettich, "Journal Writing: Old Fare or Nouvelle Cuisine?" and "Study Skills Are for Career and College," and categories in the cognitive domain of the Bloom Taxonomy. (References are included.) (LL)

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BARAT COLLEGE

Inducing Students To Think About Their Learning:

Four Approaches

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Poster prepared for the 101st meeting of the
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INDUCING STUDENTS TO THINK ABOUT THEIR LEARNING: FOUR APPROACHES

In Learning-Centered Psychological Principles: Guidelines for School Redesign and Reform (1993), the APA Presidential Task Force on Psychology in Education presents 12 learner-centered psychological principles and their implications for school redesign and reform. According to the authors, effective curricula help students "...engage in higher-order thinking and practice metacognitive strategies, including reflective self-awareness and goal setting" and "...become more aware of their own psychological functioning and how it relates to their own learning" (p. 10).

This paper presents four approaches employed by the author in his classroom that collectively exemplify these implications. They include journal writing, the Bloom Taxonomy of Educational Objectives, the Covert Curriculum, and Kolb's Experiential Learning Model.

Journal Writing

Journal writing is a teaching/learning technique that induces students to reflect and to connect specific course concepts to past or present experiences including other courses, conversations, work, the media and other daily events. A topical autobiography, the journal helps make a course

personally meaningful to students and accounts for approximately 20% of the final grade. Journal Guidelines (see attached) instruct students to write at least two entries weekly that emphasize specific course concepts. Highly personal entries are discouraged for ethical reasons and to facilitate grading. Most entries are written at the levels of comprehension or analysis in the Bloom Taxonomy (see below). Descriptive statistics from survey data obtained from over 440 students in 10 psychology courses indicate that students strongly regard (on a seven-point scale where "7" = "very much") the journal as a source of critical thinking ($\underline{M}$ = 5.92, $\underline{SD}$ = 1.58), self-directed learning ($\underline{M}$ = 5.72, $\underline{SD}$ = 1.25) and feedback from the teacher ($\underline{M}$ = 5.59, $\underline{SD}$ = 1.48) (Hettich, 1990-Attached). When given a choice between writing a journal or a term paper, 95% of the students prefer the journal because it is a continuous assignment that includes several topics which can be applied to daily living. In short, the journal induces students to think about and apply what they learn beyond the class lecture and study periods.

The Bloom Taxonomy of Educational Objectives

The Bloom Taxonomy of Educational Objectives in the Cognitive Domain (Bloom, Englebert, Furst & Krathwohl, 1956) is a hierarchy of six instructional objectives that includes (from

lower to higher levels) knowledge, comprehension, application, analysis, synthesis, and evaluation.

The five higher levels are incorporated within the guidelines for journal writing. Students are encouraged to write entries that are examples (comprehension) or demonstrations (application) of concepts, break down ideas into subcomponents (analysis), and combine (synthesis) and judge ideas using evidence (evaluation). Students in certain advanced courses are asked to reread and classify past entries according to Bloom levels and explain the levels in subsequent entries. Students who understand the taxonomy typically write entries at higher levels.

Independent of journal writing, the taxonomy is sometimes used to teach test-taking skills (Hettich, 1992 a). A handout like the attached lists each Bloom level, its corresponding instructional objective and verbs associated with each (e.g. Knowledge: "list," "define"; Comprehension: "explain," "summarize"; Application: "demonstrate," "contrast"). When students learn that verbs differ in the level of thinking and information required on exam questions, they can become more discriminating in their study and test taking behaviors. Students regard the Bloom Taxonomy with great interest and wish they had learned about it as freshmen.

The Covert Curriculum

Many students disdain courses such as history, algebra and art or view higher education as apart from the "real world" because their college experiences appear irrelevant to jobs and careers. Such students fail to discriminate between college's "overt curriculum" (academic programs, courses) and its "covert curriculum." The covert curriculum refers to those numerous, routine skill-related activities, behaviors and attitudes that are transacted inside and outside of classrooms. Collectively, they reflect a student's overall work orientation and habits (Hettich, 1992 a, 1992 b-Attached).

Examples of the covert curriculum include submitting assignments on time, listening attentively, taking organized notes, maintaining an appointment book, monitoring one's goals and values, coping with stress, and working effectively with others. Each example has its counterpart in the job/career environment. In fact, such skills are part of the 16 types of skills that employers report as essential in the workplace (Carnevale, Gainer & Meltzer, 1990).

The covert-curriculum perspective encourages students whose motivation for college is unclear to link the "irrelevant" present to the future by recognizing that study skills are career skills. Adult students can enter or re-enter school confident that they already possess many of college's survival skills.

Kolb's Experiential Learning Model

In Kolb's Experiential Learning Model (Kolb, 1984), learning proceeds in four cycles, from concrete experience to reflective observation to abstract conceptualization and to active experimentation. Each stage reflects a preferred mode or orientation to learning.

The Learning Style Inventory (LSI) is a 12 item self-report questionnaire that produces scores which represents a student's preference for each orientation. In the Kolb procedure, scores on the four orientations are combined in pairs to produce four learning styles which can subsequently relate to career paths. However, recent research (Newstead, in press, Ruble & Stout, 1990, Ruble & Stout, 1991) critical of the LSI suggests that considerable caution should be exercised when using this instrument. When the author uses the LSI with his students, only the scores that correspond to the four orientations are computed. We discuss: 1) the concept of learning orientations; 2) its implications for student performance, teaching styles, homework assignments, and teaching/learning processes; and 3) the limitations of the LSI. Claxton & Murrell (1987) present a comprehensive exposition of learning styles models and issues.

Conclusion

Instructors seeking to practice learner-centered principles of teaching have several tools at their disposal, four of which are summarized here. Survey data supports the value of journal writing in various courses as a means of enabling students to reflect upon and to connect course concepts to their experiences. Anecdotal evidence suggests that the Bloom Taxonomy, the Covert Curriculum concept, and the Learning Styles Inventory increase students' awareness of their learning processes.

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Author Notes

1. A similar version of this paper was presented at The University of Plymouth and Keele University in October, 1992, The University of Stirling, November, 1992, and at the meeting of the British Psychological Society, December 16, 1992, London.

2. LSI materials may be purchased through McBer & Company, 116 Huntington Ave., Boston, MA 02116.

3. The writer thanks Dana Ugolini for her assistance in preparing these materials.

GUIDELINES FOR JOURNAL WRITING: (name of course) PH 1993

Why keep a journal?

The primary purposes of journal writing are to encourage you to reflect upon and connect the facts, concepts and principles that you acquire from this course to your experiences: other courses, your work, the media, conversations, and other sources. An autobiographical technique, the journal acknowledges your thoughts on course topics, and it provides an opportunity to apply them to your daily experiences. The journal is assigned instead of a term paper.

How do I write in the journal? (Procedures)

1) Use a standard spiral notebook containing at least 30 pages.
2) Begin each entry on a new page, number it, and enter the date. Write at least two entries each week.
3) Journal entries may focus on past or current course material.
4) As you write, underline the specific course concepts used. Try to use more than one concept in an entry, and place more emphasis on the concepts and less on the experience (anecdote) to which the concepts connect.
5) Think and write at different levels. For example, you can:
   a) state an example of a concept, showing that you comprehend it;
   b) summarize a recent application or demonstration of a concept;
   c) analyze or separate the components of an idea into smaller parts;
   d) evaluate an idea using evidence to judge its strengths and weaknesses; or
   e) combine two or more concepts and create a new one (synthesis).

   These categories (a - e) represent five levels of thinking in the Bloom Taxonomy of Educational Objectives. Thus, this "cognitive" form of journal writing may contrast with "expressive" journals used in other courses.

   Good journal writing takes time and thought, so be specific and avoid superficial entries. With practice, you may recognize that you are expressing yourself creatively and thoughtfully, and enjoying it.

How is the journal evaluated?

Submit your journal on the dates indicated on the syllabus so that I can provide feedback. The journal will comprise about 15-20% of your final grade. It is evaluated using these criteria: depth and versatility of your thinking, quality of written expression, and the number of entries. Although many students have never written a journal, all who try seriously, succeed.

Source: Hettich, P. (1990). Journal writing: Old Fare or Nouvelle Cuisine? Teaching of Psychology, 17, 36-39.

Journal Writing: Old Fare or Nouvelle Cuisine?

Paul Hettich
Barat College

Journal writing is a popular teaching/learning technique that enables students to connect specific course concepts to their experiences. Students believe that journal writing stimulates critical thinking, provides feedback about learning, and is a means of self-expression. Teachers agree that journals provide developmental feedback and permit self-expression, but reviewing journals is time-consuming. The adaptability of the journal to diverse learning objectives assures its continuing role as a teaching/learning technique.

Journal writing has been used for decades in psychology, sociology, English, education, and other fields. I began using the journal in 1972 in response to student pleas for "relevance," a plea often heard in the 1970s. My experiences with the journal technique have been reported (Hettich, 1976, 1988) and evaluated (Hettich, 1980b; Price, 1982). Journal writing remains a valuable teaching/learning tool, not only for the reasons described in previous reports, but also as a response to two other pleas: Teach students to write (Smith, 1983); and encourage students, especially adult reentry students, to share their experiences. The purposes of this article are to describe my approach to journal writing, summarize applications of the journal to various classroom needs, and assess the impact of journal writing on students and teachers.

Definition and Dimensions of Journal Writing

An extensive review of journal writing and other forms of autobiography that are used in education, personality research, psychotherapy, and literature is found in Fulwiler (1987) and Price (1982). I define *journal writing* in Allport's (1942) terms as a topical autobiography: a short, discontinuous personal document that represents an excision from life of special content or classes of events. My students' journal entries are short autobiographical statements that are independent of previous entries, and they are excerpts from students' experiences with a special class of events—a psychology course.

Depending on a teacher's objectives, students may be asked to emphasize the affective/motivational components or the cognitive components of their experiences. Some teachers in English and education tend to emphasize the affective dimensions (Bowman, 1983; Hart, 1972; Miller, 1979). Examples of journal writing in psychology emphasize affective components (Anderson, 1982), cognitive components (Terry, 1984), or both (McManus, 1986; Snodgrass, 1985).

According to Jenkinson (1988), journal writing has been criticized for being too personal and for invading the privacy of students and their families. There may be occasions when knowledge of students' personal views and experiences is desired. However, the ethical concerns involved in requiring students to disclose personal issues, combined with the discomfort many students feel with self-disclosure, may override the teacher's desire for an affectively oriented journal, especially if it is graded. Students can reveal their knowledge, skills, and learning processes in a cognitive-oriented journal in a manner that is ethically acceptable, comfortable, and open to objective evaluation.

Although teachers differ in emphasis, they concur that a journal is an effective tool for strengthening writing skills. For example, Yinger (1985) maintained that a journal permits students to improve their writing by: (a) focusing on processes rather than on products, (b) emphasizing expressive and personal aspects, and (c) serving as a record of thought and expression that is available for rereading.

Journal Writing Procedures

On the first day of class, students are given a copy of Guidelines for Journal Writing that addresses purposes, procedures, and evaluation criteria. The guidelines state that the primary purpose of the journal is to encourage students to connect the facts, concepts, and principles that they acquire from the course to their experiences (i.e., to other courses, a job, newspapers, magazines, books, television, motion pictures, conversations, and other sources). The journal adds a personal dimension to the course and provides an opportunity to apply course concepts to daily experiences.

Students are instructed to: (a) write one long (one page) entry or two short (one-half page) entries weekly, (b) begin each entry on a separate sheet, (c) date each entry, and (d) underline the course concepts used. Journal entries can focus on current or past material. Greater emphasis should be placed on the concepts and less on the anecdote or experience. Entries should vary among the following types: examples that show comprehension of the concept; application or experimentation with principles; and analysis, evaluation, and synthesis of course concepts. Journals are reviewed early, midway, and at the end of the semester, and at any time the student wants feedback. Written feedback is provided to each student, and general comments are presented to the class after each of the first two reviews. The journal is evaluated according to the following criteria, in the order of their importance: depth of thinking, variety of entries (according

to the categories just indicated), number of entries, and quality of writing. The journal comprises between 15% and 20% of the final grade.

These guidelines may appear to place many restrictions on students, but they do not. There are wide, often fascinating, variations in students' approaches to conceptualizing, organizing, and expressing the connections between course concepts and their diverse experiences. Following are sample entries from General, Learning, Experimental Psychology, and Consumer Psychology courses, respectively.

> There is a small boy around in the school. One day he called me LuLu. I was very surprised because I do not know him. Later I learned that there is another Chinese girl around in the school by that name and he knows her. So whenever he sees other Chinese girls, he calls them Lulu. I think that this would be an example of *stimulus generalization*. The little boy has associated the name Lulu with the certain looks and features of Chinese girls, and he tends to generalize to all Chinese girls.

> Last Sunday was an extremely hot and humid day. Before I realized it, I had utilized *Premack's Principle* by stating to my husband, "if we want to go out in the boat (high-frequency behavior)—a frequent summertime pleasure, then we must first straighten up the house (low-frequency behavior).

> I'm making a definite effort to look at research on a much more critical note than I was previously. I'm trying to decide if certain points were valid and if experimental method was relevant to the study. In my Social Psych class, I find myself mentally critiquing Aronson's research techniques. I hope this will provide a sounder base for my next examination.

> "Killing Us Softly, Again" [film shown in class] left me outraged and frightened. Outraged because women are still used by advertising as objects, objects of lust and violence. Frightened because young people are so desensitized to these images that they don't realize that their lack of feeling isn't normal. Young women don't seem to realize that this continued portrayal of women as objects does and will affect them personally. Although men are also used as objects by advertising, they usually aren't portrayed as *vulnerable* objects or victims. We've come so far, but have so far to go. It's sad too, advertising sets up impossible perfection as the goal to strive for. Because perfection is out of reach for humanity, this is a goal that can leave our self-esteem in tatters and only result in disillusionment and failure.

Applications of the Journal Writing Techniques

The diversity of journal entries is matched by the adaptability of the technique to college classrooms. I have used the journal with 540 students enrolled in the following 11 psychology courses: General Psychology (n = 150), Consumer Psychology (n = 113), Learning (n = 113), Industrial/Organizational Behavior (n = 61), Senior Seminar (n = 31), Experimental Psychology (n = 24), Effective Study (n = 23), Educational Psychology (n = 8), Physiological Psychology (n = 6), Statistics (n = 6), and Cognition (n = 5).

Using their own guidelines, procedures, and evaluation criteria, colleagues in psychology have used the journal effectively in their courses. For example, students enrolled in the Interpersonal Skills and Group Dynamics course complete a Personal Reaction Log in which they direct remarks to four categories: experiences in class, behaviors observed, their feelings, and their thoughts. Our director of undergraduate internships required students to write about their significant experiences and then discuss them with the teacher during their conferences. Graduate students enrolled in an evaluation research course kept a journal that followed models of journal writing for program evaluation (Hettich, 1980a).

A review of *Teaching of Psychology* revealed additional applications of journal writing. Combining two learning techniques, students in an adolescent psychology course recorded their impressions from an interview with a "live" case study in their journals (McManus, 1986). Students in courses that contain instruction on human memory kept a "forgetting journal" of instances when they forgot specific things (Terry, 1984). In his graduate human sexuality course, Anderson (1982) had students keep a journal to help them become more comfortable with sensitive course material. Although students are occasionally asked to share an entry in class, no one but the student reads the journal. Snodgrass (1985) incorporated three forms of writing into her social psychology course. Students kept course logs to record their reactions to readings, films, demonstrations, and ideas for papers or projects. They wrote short analyses of journal articles, and they reported their observations of social psychological phenomena.

Meta-analysis of Entries

The objectives, basic procedures, and major applications of journal writing as a teaching/learning tool have been described. I have begun exploratory efforts to "stretch" the technique and use journal entries as a meta-cognitive tool. Midway through my Educational Psychology and Psychology of Learning courses, I inform students that the types of entries described in the journal guidelines reflect levels of Bloom's (1956) taxonomy of educational objectives in the cognitive domain. In ascending order, from simple to complex, the six levels are: knowledge, comprehension, application, analysis, synthesis, and evaluation. Students are discouraged from writing entries at the knowledge level because such entries are merely repetitions of material from the class or readings.

After the rationale for Bloom's system is presented, students are asked to reread their entries, to identify the Bloom levels that best describe them, and to categorize and justify all future entries. Students begin learning how to discriminate among their levels of thinking using autobiographical writing. Thus, journal entries are not merely expressive

products of student thinking, they become a forum for examining thought processes within Bloom's hierarchical framework. For example, at the end of an entry that summarized an example of the eliciting effect, one student wrote: "This is an example of comprehension because I understand what the eliciting effect is and I described an example of it." After using key points contained in articles about aggressive behavior and modeling to develop a hypothesis, another student wrote: "Bloom—Levels 4 [analysis] and 5 [synthesis]—analyze ideas of Eron and Bandura, combine their ideas to develop theory of imitative behavior."

Students are challenged by this assignment. In a small Educational Psychology class in which this innovation was pilot tested, students reported that comprehension (Level 2) and application (Level 3) entries are the least difficult to write and that synthesis (Level 5) and evaluation (Level 6) entries are the most difficult. Applying a rating scale ranging from *not at all* (1) to *nearly always* (5), students ($N = 7$) concluded that the Bloom taxonomy taught them to become aware of their levels of thinking ($M = 4.43$, $SD = .73$), stimulated critical thinking ($M = 4.29$, $SD = .7$), and helped them understand the concepts ($M = 4.29$, $SD = .7$). Typically, students wrote at higher and more diverse levels of Bloom's hierarchy once they understood and correctly applied the taxonomy. From these early efforts, I conclude that Bloom's taxonomy is a productive meta-cognitive tool in journal writing when the instructional objectives and Bloom's concepts are clearly explained and repeated as needed and when student efforts are regularly reviewed and encouraged.

Can advanced undergraduates benefit from knowledge of other models of thinking, such as those proposed by Perry (1981) and Belenky, Clinchy, Goldberger, and Tarule (1986)? Perry's model of cognitive development has been incorporated into psychology courses (Van Hecke, 1987) and used to teach critical thinking in writing (Van Hecke, 1989). In a second exploratory effort, the seven Educational Psychology students were given a lecture and handout that summarized the Perry model (Van Hecke, 1985) and were subsequently asked to categorize and justify their journal entries. Applying the same scale created for the study concerning Bloom's hierarchy, students concluded that Perry's model made them aware of their levels of thinking ($M = 3.7$, $SD = .7$), stimulated critical thinking ($M = 3$, $SD = .76$), and helped them understand other course concepts ($M = 3.14$, $SD = 1.12$). That the moderate ratings of Perry's model were less favorable than those obtained for Bloom's taxonomy is probably due to the complexity and sophistication of Perry's concepts. Most students expressed interest in Perry's model but found it difficult to understand when applied to journal writing. However, the most academically capable students were relatively successful in identifying and justifying the appropriate Perry level for their entries, when such levels applied. Telling students about Perry's cognitive stages of development provides information about this model of critical thinking; it does not necessarily advance them through these stages. In the future, more time will be devoted to discussing Perry's stages and their relation to journal writing. In conclusion, the journal technique shows promise as a meta-cognitive tool for encouraging students to think critically about their thinking. This application of the journal invites further testing and research.

Journal Writing Across the Curriculum

As mentioned earlier, journals are used in other disciplines. In a special issue of *Phi Delta Kappan* devoted to writing across the curriculum, Jenkinson (1988) acknowledged that journal writing "plays a vital role in the development of fluency" (p. 715). Although examples from psychology are omitted from his review, Fulwiler (1987) presented a comprehensive and convincing case for journal writing across the curriculum in an edited book consisting of 42 chapters written by teachers from all levels of education and most liberal arts disciplines. Drawing on their experiences in English and those of colleagues in other disciplines, Fulwiler and Young (1982) described how journal writing can be used to begin and end classes, interrupt class lectures, pose or solve problems, and serve as homework assignments or progress reports. On other occasions, students are asked to write to each other about questions or concerns raised in class. They observed that "journals are interdisciplinary and developmental by nature; it would be hard for writers who use journals regularly and seriously not to witness growth" (p. 30).

In summary, analysis of the literature and the experiences of journal users demonstrates the versatility and adaptability of this autobiographical technique in psychology and across the curriculum. Journal entries can be viewed as products, or they can be used to study cognitive processes. What evidence exists that the journal is an effective teaching/learning technique?

Effects of Journal Writing on Students and Teachers

On the last day of class, students are asked to complete the Journal Questionnaire, a two-page survey that seeks their opinions about various dimensions of journal writing. The results reported next are based on the responses of 440 students enrolled in 10 different psychology courses. On a scale ranging from *not at all* (1) to *very much* (7), the journal was rated most highly as a means of stimulating critical thinking ($M = 5.92$, $SD = 1.58$), as a source of feedback about learning ($M = 5.59$, $SD = 1.48$), and as an aid to the self-directed expression of learning ($M = 5.72$, $SD = 1.25$). The journal was perceived as a valid measure of learning ($M = 5.08$, $SD = 1.51$), but less strongly as a source of motivation to learn ($M = 4.80$, $SD = 1.51$). Finally, journals were rated as a supplement to exams ($M = 5.10$, $SD = 1.69$), not a substitute for them ($M = 4.04$, $SD = .59$).

When students were asked about their preference for writing a journal or a term paper, 95% chose the journal because journals: (a) include more topics than a term paper; (b) represent a personal application of the subject matter; (c) are written throughout the course, not during the last days or weeks of the term; or (d) are more interesting and stimulating than term papers. These responses may be disconcerting to some teachers, and it may be unfair to compare term papers with journals. The responses, however, are of interest to those of us who require a writing component in our courses.

The opinions of a sample of teachers who used journals were reported in Hettich (1980b). A survey was mailed to 34 teachers who had requested reprints of publications about

journal writing. Of the 20 who responded, 12 (60%) had assigned the journal at least once, primarily in an introductory or practicum course. They gave the journal its highest ratings as a supplement to exams and papers ($M = 5.78$, $SD = 1.01$), as a supplementary measure of learning ($M = 5.64$, $SD = 1.28$), and as an additional source of feedback about student learning ($M = 5.54$, $SD = .82$). But the journal is not a substitute for exams and papers ($M = 2.91$), although considerable differences of opinion were expressed ($SD = 2.31$).

When respondents were asked what percentage of the total course grade should be allocated to journals, the median reported was 25%; their responses ranged from 10% to 100%. These results concur with earlier ratings which showed that the journal is primarily a supplement to other measures of learning.

Generally, respondents in this sample regarded the journal as a measure of self-expression for students ($M = 5.$, $SD = .95$); as a source of motivation ($M = 5.$, $SD = 1.$); and, to a lesser extent, as a means of stimulating critical thinking ($M = 4.82$, $SD = .82$). Instructors reported that students differed widely in their attitude toward and aptitude for writing journals. As one teacher indicated, the journal is "great for some students, poor for others; extremely variable response from students." However, clear guidelines and regular feedback usually reduce attitude and aptitude problems.

When asked what they most liked about the journal, respondents replied that journal writing permits instructors to monitor student development. Also, journals integrate students' private agenda into the learning experience while helping them form connections between concepts studied in class and everyday experiences.

Respondents were nearly unanimous in what they liked least about journals: Too much time is required for reviewing journals and writing comments. Concurring with their views, I recommend that journals be assigned to classes with enrollments less than 25, unless teaching assistants are available and trained to assist in periodic reviews. Finally, respondents recommended that instructors provide clear directions, give concrete examples of what is expected, pilot test the journal on a small sample of students, and provide feedback. To these recommendations should be added that "if at first you don't succeed, try, try again." The technique works!

In conclusion, students believe that journal writing stimulates critical thinking, provides feedback about their learning, and gives them an opportunity to express themselves. Teachers agree that journals provide developmental feedback about students and permit student self-expression, although journal reading is time-consuming. In the final analysis, the journal is an effective teaching/learning alternative that provides students an opportunity to think, write, extend their knowledge of psychology beyond the classroom; as exploratory efforts suggest, journal writing may help facilitate meta-cognitive skills. Its versatility and adaptability appear unlimited. Considering these factors, perhaps the journal's full potential remains largely untapped.

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Notes

1. Portions of this article were presented at the Tenth International Conference on Improving University Teaching, University of Maryland, College Park, MD, July 7, 1984.
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TABLE I. Major Categories in the Cognitive Domain of the Taxonomy of Educational Objectives (Bloom, 1956)

Descriptions of the Major Categories in the Cognitive Domain
1. Knowledge. Knowledge is defined as the remembering of previously learned material. This may involve the recall of a wide range of material, from specific facts to complete theories, but all that is required is the bringing to mind of the appropriate information. Knowledge represents the lowest level of learning outcomes in the cognitive domain.
2. Comprehension. Comprehension is defined as the ability to grasp the meaning of material. This may be shown by translating material from one form to another (words to numbers), by interpreting material (explaining or summarizing), and by estimating future trends (predicting consequences or effects). These learning outcomes go one step beyond the simple remembering of material, and represent the lowest level of understanding.
3. Application. Application refers to the ability to use learned material in new and concrete situations. This may include the application of such things as rules, methods, concepts, principles, laws, and theories. Learning outcomes in this area require a higher level of understanding than those under comprehension.
4. Analysis. Analysis refers to the ability to break down material into its component parts so that its organizational structure may be understood. This may include the identification of the parts, analysis of the relationships between parts, and recognition of the organizational principles involved. Learning outcomes here represent a higher intellectual level than comprehension and application because they require an understanding of both the content and the structural form of the material.
5. Synthesis. Synthesis refers to the ability to put parts together to form a new whole. This may involve the production of a unique communication (theme or speech), a plan of operations (research proposal), or a set of abstract relations (scheme for classifying information). Learning outcomes in this area stress creative behaviors, with major emphasis on the formulation of *new* patterns of structures.
6. Evaluation. Evaluation is concerned with the ability to judge the value of material (statement, novel, poem, research report) for a given purpose. The judgments are to be based on definite criteria. These may be internal criteria (organization) or external criteria (relevance to the purpose), and the student may determine the criteria or be given them. Learning outcomes in this area are highest in the cognitive hierarchy because they contain elements of all of the other categories, plus conscious value judgments based on clearly defined criteria.

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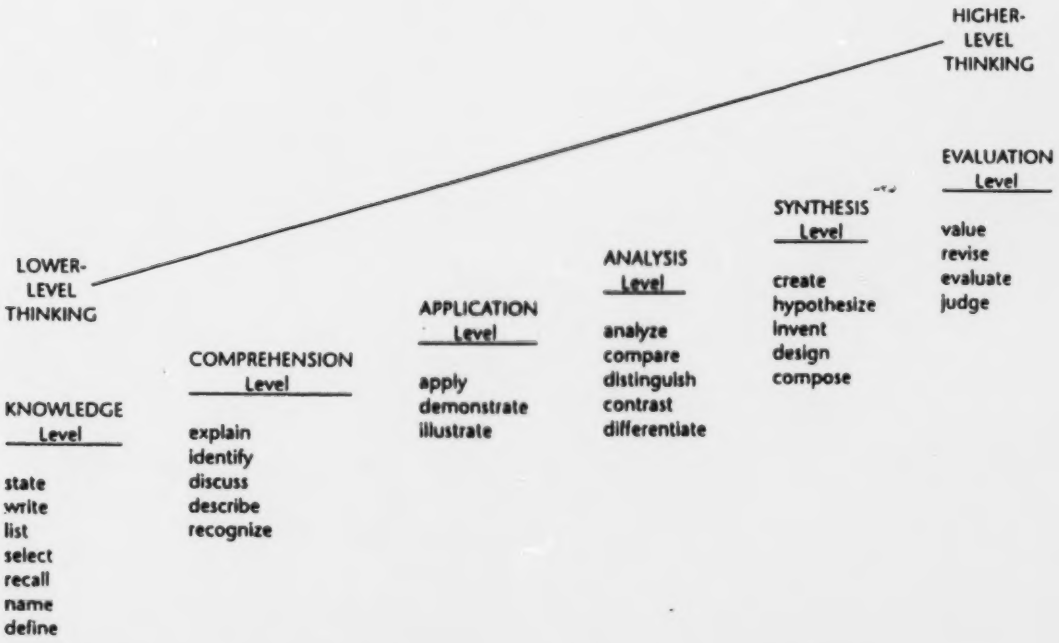

Figure 13.1 Essay Examination Verbs Grouped by Levels of the Bloom Taxonomy of Educational Objectives [Adapted from Ann Stephanie Stano, S.S.J. (1981). *A Study of the Relationship Between Teaching Techniques and Students' Achievement on High Cognitive Level Questions Asking Skills.* Unpublished doctoral dissertation, University of Chicago.]

progressively greater demands on your ability to retrieve, reconstruct, and express the required information. For example, if your instructor was going to ask about the causes of the Civil War, consider how different your answers would be to these questions.

- *List* the causes of the Civil War. (knowledge level)
- *Discuss* the causes of the Civil War. (comprehension level)
- *Analyze* the causes of the Civil War (analysis level) *and evaluate* (evaluation level) whether or not the war was justified.

Study Skills Are for

Editors' Note: The ideas contained in this article were drawn from* Learning Skills For College ... And Career *by Paul Hettich, published by Brooks/Cole Publishing Company (Pacific Grove, CA), February, 1992.

Students are sometimes ensnared by the proverbial trap known as "missing the forest for the trees." Buried in the day-to-day demands of school, job, and home life, students may not believe that courses such as history, algebra or sociology can influence career or personal success. Similarly, they may not realize that study skills are also career skills. How can we direct students' attention to these issues and help them see the forest *and* the trees? Consider incorporating the following perspective into your instruction: CONNECT COLLEGE TO CAREER THROUGH THE COVERT CURRICULUM.

"Buried in the day-to-day demands ... students may not believe that courses such as history, algebra or sociology can influence career or personal success."

THE OVERT AND THE COVERT CURRICULUM

The particular courses which students complete are part of the institution's *overt curriculum*, the official educational offerings published in the catalogue and listed in the term schedule. However, as students try to master the content of the overt curriculum they are simultaneously acquiring important learning experiences in the *covert curriculum*. The experiences are considered covert because students are generally unaware of their educational significance. The covert curriculum is defined as those numerous, routine, *skill-related* activities, behaviors, and attitudes that are transacted inside and outside of the classroom. Collectively these experiences reflect a student's habits and overall orientation to school work. Some examples of the covert curriculum include listening attentively, taking organized and legible notes, submitting assignments on time, increasing reading comprehension, maintaining an assignment book, periodically reviewing goals, managing stress, accepting responsibility for one's behavior, and learning to work in groups.

This small sample of activities includes traditional study and life/learning skills. Students could view the covert curriculum as a collection of unscheduled, self-taught (often), non-credit minicourses that help them succeed in the overt curriculum and nonacademic experiences. Although the activities are not listed in the catalogue or recorded on a transcript, they have a powerful educational effect during and after college. Working students would label these activities as job skills and readily testify to the importance of punctuality, listening, stress management, time management, and taking responsibility.

"Students could view the covert curriculum as a collection of unscheduled, self-taught (often), non-credit minicourses that help them succeed in the overt curriculum."

If doubts linger about the relationship between the covert curriculum and job skills, review *Workplace Basics: The Essential Skills That Employers Want* (Carnevale, Gainer & Meltzer, 1990). The authors grouped 16 skills that employers deem essential into seven categories:

- Learning to learn: the foundation skills upon which all others are based
- Reading, writing, and computation: technical skills that employers consider basic for entry and advancement
- Oral communication and listening: skills that enable people to communicate in their jobs
- Problem solving and creative thinking: skills that enable employees to think and act flexibly
- Self-esteem, motivation/goal setting, and employability/career development: developmental skills that help people maintain their job and advance
- Interpersonal skills, teamwork and negotiation: skills that enable people to work together in groups
- Organizational effectiveness and leadership: the "influencing" skills that help individuals navigate through the organization

Students may feel overwhelmed by this list but you can assure them that college provides several opportunities in the covert and overt curricula to develop these skills.

The covert curriculum is good news for several students. (1) For students whose motivation is unclear or extrinsic, the skills they develop in the covert curriculum can link their present (school) to their future, *regardless of the*

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"The covert curriculum is good news for several students."

occupation chosen. (2) Students who see no earthly use for algebra or *know* that psychology is nothing but common sense, may reluctantly agree that the listening, note-taking, and thinking they do in such courses will benefit them in college *and* career. (3) Many returning students enter college already skilled in time and stress management, goal setting, listening, and communicating. Their major task may be to use those skills to master the overt curriculum efficiently and manage their busy lives. (4) For students whose prior work and educational experiences are limited or marked by failure, the distinction between the overt and the covert curricula can help them identify skills they need and establish realistic goals.

In summary, when students become aware that their everyday habits and attitudes (the covert curriculum) can be as important as the content of their courses (the overt curriculum), they may be able to see the forest and the trees.

"Students operate like a self-employed business or professional person with no secretary."

STUDY SKILLS AS CAREER SKILLS

Part of the covert curriculum consists of the traditional study skills. Many students are not aware that study skills can be as important for occupational advancement as they are for academic success.

Time Management. Successful leaders and managers have mastered techniques for controlling time spent on the phone, with co-workers, at lunch and other breaks, and on low priority tasks. They have the discipline to say no to social conversations that can go on and on or to their favorite television program when there is work to do.

Getting Organized. Students operate like a self-employed business or professional person with no secretary. They have responsibilities to discharge, tasks to complete, people to whom they are responsible, and pressures to contend with. They must learn how to concentrate, how to organize their work environment, and how to work efficiently.

"Experts maintain that between 40% and 60% of a business employee's workday is spent listening."

Stress Management. Techniques that students learn for dealing with stress in college can be transferred to the work place and personal life. Furthermore, when these techniques become ingrained habits for responding to stress, they can be quickly implemented when needed.

Listening. Experts maintain that between 40% and 60% of a business employee's workday is spent listening. Good listeners in college are likely to be good listeners on the job. Consider the consequences of poor listening skills for the health service provider listening to the details of a patient's condition and treatment procedures, or the police officer listening to motorists whose cars collided, or the executive negotiating details of a multi-million dollar contract during a meeting.

Note Taking. Many students believe that note taking ends with the final course. Wrong! Most jobs involve training, meetings, briefings, reports, performance evaluations, conferences, negotiations, or similar activities where accurate notes must compensate for an imperfect memory. If a student develops respect for note taking in school, carrying a pen and pad becomes natural on the job.

Group Skills. Although group skills are often omitted in study skills courses, they shouldn't be. Developing interpersonal skills is an essential part of a student's education and a critical component of career and personal success. College life abounds with opportunities to practice group skills: group dynamics courses, thoughtful group study, campus organizations, campus jobs, and residence life. Group skills are marketable skills.

It would be easy to illustrate how skills such as reading, research, remembering, writing, and even test-taking have counterparts in numerous occupations. In conclusion, if students are not motivated by the overt curriculum, encourage them to connect college to career by mastering the covert curriculum, especially those study skills that may someday serve as occupational skills.

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